

WHAT IS CLAIMED IS:

1. A method, comprising:

5 determining at a processing element that an interface has become available to
transmit packets based on an entry in a first portion of a calendar structure, wherein the
first portion of the calendar structure is locally stored at the processing element and a
second portion of the calendar structure is stored in memory external to the processing
element; and

10 updating a location in a shaper vector to indicate that the interface is now
available to transmit packets, wherein the shaper vector includes locations associated
with a plurality of interfaces.

2. The method of claim 1, wherein the shaper vector has a series of bits indicating
which interfaces are currently available to transmit packets, and said updating comprises:
15 updating the appropriate bit in the shaper vector.

3. The method of claim 2, wherein the calendar structure has a series of entries
associated with time periods, each entry having a series of bits indicating which
interfaces will become available to transmit packets during the time period associated
20 with the entry.

4. The method of claim 3, wherein said updating comprises:
combining the shaper vector and the appropriate entry in the first portion of the
calendar structure using an OR operation and storing the result in the shaper vector.

5. The method of claim 1, further comprising:

pre-fetching a subset of the second portion of the calendar structure from the external memory and locally storing the subset at the processing element as the first portion.

5

6. The method of claim 5, wherein said pre-fetching comprises:

clearing the first portion of the calendar structure;

retrieving the subset of the second portion from the external memory; and

combining the retrieved information with the first portion using an OR operation

10 and locally storing the result as the first portion of the calendar structure.

7. The method of claim 1, further comprising:

determining a packet to be transmitted via a first interface;

15 updating a location in the shaper vector to indicate that the first interface is not available;

calculating a time when the first interface will again be available; and

updating an entry in the calendar structure to indicate when the interface will again become available.

20 8. The method of claim 7, further comprising:

selecting the first interface based on information stored in the shaper vector.

9. The method of claim 7, wherein said calculating comprises dividing the length of the packet by a transmission rate associated with the first interface.

10. The method of claim 7, further comprising:

determining whether the entry in the calendar structure to be updated is stored in the first portion of the calendar structure.

5 11. The method of claim 7, wherein (i) the determination of the packet to be transmitted, the updating of the shaper vector to indicate that the first interface is not available, and the updating of the calendar structure are performed by a transmission block, and (ii) the determination that an interface has become available to transmit packets based on an entry in a first portion of a calendar structure and the updating of the
10 shaper vector to indicate that the interface is now available are performed by a timer block.

12. An article, comprising:

a storage medium having stored thereon instructions that when executed by a
15 machine result in the following:

determining at a processing element that an interface has become available to transmit packets based on an entry in a first portion of a calendar structure, wherein the first portion of the calendar structure is locally stored at the processing element and a second portion of the calendar structure is stored in
20 memory external to the processing element, and

updating a location in a shaper vector to indicate that the interface is now available to transmit packets, wherein the shaper vector includes locations associated with a plurality of interfaces.

13. The article of claim 12, wherein the shaper vector has a series of bits indicating which interfaces are available to transmit packets, and said updating comprises:

5 updating the appropriate bit in the shaper vector.

14. The article of claim 13, wherein the calendar structure has a series of entries associated with time periods, each entry having a series of bits indicating which interfaces will become available to transmit packets during the time period associated
10 with the entry.

15. The article of claim 14, wherein said updating comprises:

 combining the shaper vector and the appropriate entry in the first portion of the calendar structure using an OR operation and storing the result in the shaper
15 vector.

16. The article of claim 12, wherein execution of the instructions further results
in:

 pre-fetching a subset of the second portion of the calendar structure from
20 the external memory and locally storing the subset at the processing element as the first portion.

17. The article of claim 16, wherein said pre-fetching comprises:

 clearing the first portion of the calendar structure,
25 retrieving the subset of the second portion from the external memory, and

combining the retrieved information with the first portion using an OR operation and storing the result in the first portion of the calendar structure.

18. The article of claim 12, wherein execution of the instructions further results
5 in:

determining a packet to be transmitted via a first interface,
updating a location in the shaper vector to indicate that the first interface is
not available,

calculating a time when the first interface will again be available, and
10 updating an entry in the calendar structure to indicate when the interface
will again become available.

19. The article of claim 18, wherein execution of the instructions further results
in:

15 selecting the first interface based on information stored in the shaper
vector.

20. The article of claim 18, wherein said calculating comprises dividing the
length of the packet by a transmission rate associated with the first interface.

20

21. The article of claim 18, wherein execution of the instructions further results
in:

determining whether the entry in the calendar structure to be updated is stored in
the first portion of the calendar structure.

22. An apparatus, comprising:

a processing element to locally store a first portion of a calendar structure; and

5 a memory external to the processing element to store a second portion of the
calendar structure,

wherein the calendar structure is associated with a plurality of interfaces and has a series of entries associated with time periods, each entry indicating which interfaces will become available to transmit packets during the associated time period.

10 23. The apparatus of claim 22, wherein the processing element is further to
locally store a shaper vector indicating which interfaces are currently available to
transmit packets.

24. A system, comprising:

15 a network processor, including:

a processing element to locally store a first portion of a calendar structure,
and

a memory external to the processing element to store a second portion of
the calendar structure,

20 wherein the calendar structure is associated with a plurality of interfaces
and has a series of entries associated with time periods, each entry indicating
which interfaces will become available to transmit packets during the associated
time period; and

25 an asynchronous transfer mode fabric interface device coupled to the network
processor.

25. The system of claim 24, wherein the processing element is further to store a shaper vector indicating which interfaces are currently available to transmit packets.